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(54) ION IMPLANTATION

(57)Abstract:

PURPOSE: To facilitate formation of a retrograded impurity introduced layer whose surface impurity concentration is controlled by a method wherein a first mask region composed of a mask material which blocks the implantation is provided on a substrate except the impurity introduced region and a second mask region composed of a patterned mask material is provided on the impurity introduced region.

CONSTITUTION: A mask material 3 on the impurity introduced region 2 of a semiconductor substrate 1 is patterned and a mask 6 which blocks implanted ions perfectly is provided on a region 5 into which the impurity is not introduced. The paths of the implanted ions 4 are changed by the patterned mask material 3 on the impurity introduced region 2 and the impurity ions are implanted into the surface of the semiconductor substrate 1 with various angles and energies. In other words, if the implanted ions 4 come close to the mask 3 of the impurity introduced region 2, they are scattered in the mask 3 and the impurity ions 4 coming out of the mask 3 is implanted into the substrate 1 with various angles and energies. With this constitution, a region 17 having uniform impurity concentration can be formed near the surface of the substrate 1.

